Amendments to the Substitute Specification:

Please replace paragraph [0055] as follows:

[0055]   The procedure described here focuses on the case of streamline flow simulations. Streamlines actually appear to be a very natural tool for defining zones. From the present invention involving identification of zones and calculation of the effective permeabilities for these zones, this choice seems to be logical. Other types of application can however be considered. For example, the information relative to the various zones could be provided by well tests. The effective permeability can in this case be calculated as a function of the radius of investigation around the well ; the zones considered are then rings. The flow simulator used for well test simulation can be a standard flow simulator. The procedure to be followed is similar to the procedure described for the streamlines. Flow simulation allows identification of zones and determination of the effective permeability for these zones, which can be compared with the data measured in the field. Then, minimization of an intermediate objective function according to the approach described above allows propagation of the correction to be applied to the effective permeabilities to the absolute permeabilities of the grid cells in the zones while respecting the a priori spatial variability model. The invention has application notably in the development of oil reservoirs.